

Attorney Docket No: 23242 -1010
(260/147) 5/24/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: EYDELMAN, Gregory

Serial No.: 09/738,235

Group Art Unit: 2862

Filed: December 15, 2001

Examiner: Dixomara Vargas

For: MRI ANTENNA

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Commissioner for Patents
Alexandria, Virginia 22313-1450

MAY 16 2003

T.C. 2800

AMENDMENT FINAL ACTION UNDER 37 C.F.R. § 1.116

In response to the Office Action dated December 16, 2001, the above-identified patent application is being amended as shown below in a Clean Version of the Amendments and as shown in the Marked Up Version of the Amendments, attached hereto.

Clean Version of the Amendments

Claims 1, 22, 27, 30, 33, 61, 62 and 70 are being amended to read as follows:

1. (Amended) An MRI antenna, comprising:

an inner conductor with first and second ends for being electrically connected across a capacitor to tune the inner conductor to a frequency, the first and second ends providing an output of the antenna; and

an outer conductor substantially surrounding the inner conductor, the outer conductor having first and second ends for being electrically connected across a capacitor to tune the outer conductor to the frequency;

wherein:

05/16/2003 DSASFAI 00000002 500988 09738235

01 FC:1202 108.00 CH
02 FC:1201 84.00 CH

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C1
and

the inner and outer conductors are inductively coupled during operation;

the inner and the outer conductors are electrically unconnected to each

other.

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232.

(Amended) An MRI antenna, comprising:

a coaxial cable unit comprising:

an inner conductor with first and second ends and;

an outer conductor substantially surrounding the inner conductor;

wherein:

the outer conductor and the inner conductor are inductively coupled and
tunable to the Larmor frequency of the species of interest during operation;

the inner and the outer conductors are electrically unconnected to each
other; and

the inner conductor provides an output of the antenna.

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(Amended) An MRI antenna, comprising:

detecting means for directly detecting magnetic resonance signals emitted
by a subject;

receiving means for inductively receiving signals corresponding to the
detected magnetic resonance signals from the detecting means, and for providing received
signals for analysis, wherein the receiving means is electrically unconnected to the detecting
means; and

means for shielding the receiving means from direct detection of the
magnetic resonance signals means.

~~31~~ 30.

(Amended) An MRI antenna comprising:

a first inner conductor with first and second ends;

a first outer conductor with first and second ends, the first outer conductor substantially surrounding the first inner conductor to form a first coaxial cable unit, the first inner conductor and the first outer conductor being inductively coupled during operation;

a second inner conductor with first and second ends;

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a second outer conductor with first and second ends, the second outer conductor substantially surrounding the second inner conductor to form a second coaxial cable unit, the second inner conductor and the second outer conductor being inductively coupled during operation;

wherein:

the inner conductors of the first and second coaxial cable units are electrically connected to form a first closed circuit tunable to a frequency;

the outer conductors of the first and second coaxial cable units are electrically connected to form a second closed circuit tunable to the same frequency;

the first closed circuit is electrically unconnected to the second closed circuit; and

the output of the antenna is provided from the first closed circuit comprising the inner conductors.

~~34~~ 35.

(Amended) The MRI antenna of Claim 30, further comprising:

a third inner conductor with first and second ends;

C5
a third outer conductor with first and second ends, the third outer conductor substantially surrounding the third inner conductor to form a third coaxial cable unit

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defining a region for receiving a body part, the third inner conductor and the third outer conductor being inductively coupled during operation;

wherein the first closed circuit further comprises the third inner conductor of the third coaxial cable unit and the second closed circuit further comprises the third outer conductor of the third coaxial cable unit.

6361. (Amended) An MRI antenna comprising:

a first inner conductor with first and second ends;

a first outer conductor substantially surrounding the first inner conductor;

the first inner conductor and the first outer conductor being inductively coupled during operation, and defining a first coaxial cable unit;

CL
could
a second inner conductor and a second outer conductor substantially surrounding the second inner conductor, the second inner conductor and the second outer conductor being inductively coupled during operation, and defining a second coaxial cable unit;

wherein:

the first and second coaxial cable units are concentric and lie substantially in the same plane, the second coaxial cable unit being within a region defined by the first coaxial cable unit;

the first outer conductor and the second outer conductor each have first and second adjacent ends, the first end of the first outer conductor being directly connected to the first end of the second outer conductor, the second end of the first outer conductor being directly connected to the second end of the second outer conductor, and the first end of the first outer conductor being electrically connectable to the second end of the first outer conductor across a capacitor to tune the outer conductors to a frequency;

a first end of the first inner conductor is directly electrically connected in series to a first end of the second inner conductor and a second end of the first inner conductor is directly electrically connected in series to the second end of the second inner conductor; and the first and second ends of the second inner conductor are electrically connectable across a capacitor to tune the inner conductors to the frequency and to provide an output of the antenna.

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62

(Amended) An MRI antenna comprising:

an outer conductor with first and second ends for being electrically connected across a capacitor to tune the outer conductor to a frequency; and

a plurality of inner conductors substantially surrounded by the outer conductor, the inner conductors being connectable across at least one capacitor to tune the inner conductors to the frequency, the outer conductor and the inner conductors being inductively coupled during operation;

wherein an output of the antenna is provided from the inner conductors.

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(Amended) An MRI antenna, comprising:

an inner conductor with first and second ends electrically connectable across a capacitor to tune the inner conductor to a frequency, the first and second ends providing an output of the antenna;

a first outer conductor substantially surrounding the inner conductor, the first outer conductor having first and second ends being electrically connected across a capacitor to tune the first outer conductor to the frequency;

a second outer conductor substantially surrounding the first outer conductor, the second outer conductor having first and second ends electrically connected across

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a capacitor to tune the second outer conductor to the frequency, the second outer conductors each defining a plurality of holes there through; and

the inner conductor being inductively coupled to the first outer conductor

and the first and second outer conductors being inductively coupled, during operation.

Add the following new claims:

R.126

44 89 63
-86. (New) The antenna of claim 61, wherein:

the inner and outer conductors of the first coaxial cable unit are electrically unconnected; and

the inner and outer conductors of the second coaxial cable unit are electrically unconnected. --

C8
cont'd

74 90 46
-87. (New) The antenna of claim 62, wherein the plurality of inner conductors are electrically unconnected to the outer conductor. --

74 91 75
-88. (New) The antenna of claim 70, wherein:

the inner conductor is electrically unconnected to the first outer conductor and to the second outer conductor. --

94 92
-89. (New) An MRI antenna, comprising:

an inner conductor with first and second ends for being electrically connected across a capacitor to tune the inner conductor to a frequency, the first and second ends providing an output of the antenna; and

an outer conductor encasing the inner conductor, the outer conductor having first and second ends for being electrically connected across a capacitor to tune the outer conductor to the frequency;

wherein:

PTO/SB/17 (01-03)

Approved for use through 04/30/2003. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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FEE TRANSMITTAL
for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT (\$)** 602**Complete if Known**

Application Number	09/738,235
Filing Date	12/15/2001
First Named Inventor	EYDELMAN, Gregory
Examiner Name	VARGAS, Dixomara
Art Unit	2862
Attorney Docket No.	23242-1010

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit Account Number
50-0988Deposit Account Name
Kaye Scholer LLP

The Commissioner is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) during the pendency of this application☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 750	2001 375	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 520	2003 260	Plant filing fee	
1004 750	2004 375	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1) (\$)			

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
20** = 6	18	108	
Independent Claims	3** = 1	84	84
Multiple Dependent			

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 84	2201 42	Independent claims in excess of 3
1203 280	2203 140	Multiple dependent claim, if not paid
1204 84	2204 42	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 192

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description
1051 130	2051 65	Surcharge - late filing fee or oath
1052 60	2052 25	Surcharge - late provisional filing fee or cover sheet
1053 130	1053 130	Non-English specification
1812 2,520	1812 2,520	For filing a request for ex parte reexamination
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action
1251 110	2251 55	Extension for reply within first month
1252 410	2252 205	Extension for reply within second month
1253 930	2253 465	Extension for reply within third month
1254 1,450	2254 725	Extension for reply within fourth month
1255 1,970	2255 985	Extension for reply within fifth month
1401 320	2401 160	Notice of Appeal
1402 320	2402 160	Filing a brief in support of an appeal
1403 280	2403 140	Request for oral hearing
1451 1,510	1451 1,510	Petition to institute a public use proceeding
1452 110	2452 55	Petition to revive - unavoidable
1453 1,300	2453 650	Petition to revive - unintentional
1501 1,300	2501 650	Utility issue fee (or reissue)
1502 470	2502 235	Design issue fee
1503 630	2503 315	Plant issue fee
1480 130	1480 130	Petitions to the Commissioner
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)
1808 180	1808 180	Submission of Information Disclosure Stmt
8021 40	8021 40	Recording each patent assignment per property (times number of properties)
1809 750	2809 375	Filing a submission after final rejection (37 CFR 1.129(a))
1810 750	2810 375	For each additional invention to be examined (37 CFR 1.129(b))
1801 750	2801 375	Request for Continued Examination (RCE)
1802 900	1802 900	Request for expedited examination of a design application

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 410**SUBMITTED BY**

Name (Print/Type) Brandon N. Sklar

Signature 

Registration No. (Attorney/Agent)

31,667

(Complete if applicable)

Telephone (212) 836 - 8653

Date May 16, 2003

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KAYE SCHOLER LLP

From: Brandon N. Sklar
212 836-8653
Fax 212 836-8689
bsklar@kayescholer.com

425 Park Avenue
New York, New York 10022-3598
212 836-8000
Fax 212 836-8689
www.kayescholer.com

FAX

DATE: May 16, 2003

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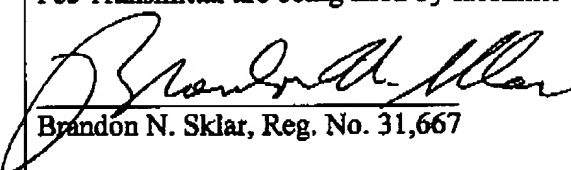
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NOTE: AFTER FINAL

Re: Amendment After Final Action, App. No. 09/738,235

I certify that the attached Amendment After Final Action, Petition for Extension of Time and Fee Transmittal are being filed by facsimile to the number above, on May 16, 2003.


Brandon N. Sklar, Reg. No. 31,667

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the inner and outer conductors are inductively coupled during operation;
and

the inner and the outer conductors are electrically unconnected to each
other. --

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--90. (New) The MRI antenna of claim *89*, wherein:

the inner conductor comprises a plurality of inner conductor segments,
wherein adjacent inner conductor segments are electrically connected across a capacitor; and

the outer conductor comprises a plurality of outer conductor segments,
wherein adjacent outer conductor segments are electrically connected across a capacitor. --

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--91. (New) The MRI antenna of claim *30*, wherein:

at least one of the first and second coaxial cable units define a region to receive
a body part. --

REMARKS

I. Status of the Application

Claims 1, 22, 27, 30, 33, 61, 62 and 70 are being amended. Claims 86-91 are
new.

As discussed below, it is respectfully submitted that the Final Rejection is
improper and should be withdrawn. The present claim amendments should therefore be entered.

If, however, it is found that the Final Rejection is proper, the present amendments
should be entered because they place the claims in condition for allowance or in better condition
for appeal. The amendments were not presented earlier because at least certain of the
amendments to claims 1, 22, 27, 30, 33, 61, 62 and 70 address a statutory double-patenting
rejection which was asserted for the first time in this Final Rejection. 37 C.F.R. § 1.116.